☰

⌕

ALEXANDER GALLOWAY   2019-11-30

ACOUSTIC RESONANCE

NONMUSIC   ACOUSTIC RESONANCE, FOURIER, GIGITAL, SOUND

Robin James's recent book *The Sonic Episteme* is a fascinating tour through the contemporary culture and politics of sound. The book hinges on what she calls "acoustic resonance," a paradigm of thinking where sound and sonic phenomena like vibration, oscillation, resonance, and diffraction are taken to be the very fabric of being itself. The "acoustic resonance" paradigm has three key parts: matter is defined in terms of "rhythmically oscillating patters of intensity"; these vibratory patterns "interact in rational or irrational phase relationships"; and finally the rational resonances are coded as consonant, while irrational resonances are coded as dissonant (63). Waves move, they interact, and the interactions are harmonious or not. In this way, the basic physics of wave propagation and superposition form the basis for an entire metaphysical hierarchy. It's one of the oldest moral hierarchies in western thought, in fact, going back to the Pythagoreans. As in ancient geometry, where certain ratios of numbers form pleasing harmonies — literally the ratios that are "logical" (*logos*) — while other interactions between numbers break the harmony and are thus illogical (*alogos*), James shows how the paradigm of "acoustic resonance" furnishes a ready mechanism for sorting consonant/rational sounds in favor of dissonant/irrational ones.

The rational/irrational distinction has long been a way to sort and classify persons along gender, class, and racial lines. As the classicist Anne Carson has pointed out in her celebrated essay on the "Gender of Sound," the ancient world — and by extension the modern world too — put forth a very specific model of the human, to which woman somehow never seems to conform. "Woman is that creature who puts the inside on the outside," Carson wrote. "By projections and leakages of all kinds–somatic, vocal, emotional, sexual–females expose or expend what should be kept in. Females blurt out a direct translation of what should be formulated indirectly" (129).

In updating this age-old metaphysical hierarchy, James turns to contemporary capitalism and political theory, particularly the adoption of neoliberal doctrines and biopolitical methods in the late Twentieth Century. While much has already been written on neoliberalism and biopolitics, James focuses on the question of calculation and the shift into a specific kind of math, statistics and probability. "The neoliberal, biopolitical push to quantify every last bit of reality," she writes at the outset, "has elevated a specific kind of math–probabilistic statistics–from a mere tool for describing things to the fundamental structure of reality and knowledge themselves" (2). Probabilistic math does two things, according to James, it constructs a language for describing any manner of heterogeneous and undetermined behavior, yet at the same time superimposes a "normal distribution" across this field of behavior. Probability does not determine or even predict outcomes in a mechanical, Newtonian sense. Yet, given a pattern of behavior, probability furnishes a ratio that relates specific cases to total cases. This technology is inherently normalizing for James, since, like the metaphysical *logos* of yore, probabilistic ratios are a way of situating the specific case in relation to the general case. (I would love to know James's thoughts on the work of Elie Ayache, who has argued that probability itself is obsolete.)

A philosopher by training, James appears equally at home in media studies. The work of Jonathan Sterne plays a role here, particularly the technique of "perceptual coding" described at length in Sterne's two books *The Audible Past* and *MP3: The Meaning of a Format*. Perceptual coding refers to the way in which a human sense (in this case the listening ear) is measured and modeled in certain ways. Then, based on this derived model of human hearing, sound waves are manipulated to better advantage, or sometimes worse. For instance, if scientists determine that a certain frequency doesn't contribute much to the comprehension of a sound, that frequency may be removed. These sorts of techniques are ubiquitous, so much that there are essentially no technically-mediated sounds that are not filtered in some way via perceptual coding. Headphones, microphones, mobile phone audio, etc. are all the result of a complex infrastructure that sculpts sound based on assumptions made about human physiology. Like Sterne, James seems to be mostly a constructionist on this point, as opposed to a realist; she studiously avoids answering the question of whether or not sound waves are "real." The question is uninteresting to her, I suspect, since sound is so much more than simply the presence or absence of vibrations in matter. Sound is rather an elaborate techno-cultural sedimentation, gathering together the many assumptions that human beings have made throughout history for how sound ought

to be reproduced.

Perceptual coding helps with compression, given how a common outcome of perceptual coding is to remove frequencies or limit dynamic range, effectively making the sound smaller. (Smaller is also often mere prelude to a new, larger sound, as the missing bands are filled with additional sensory input. This leads to an aesthetics of maximalism — where sound is compressed then amplified — which James addresses here, along with its opposite, sonic minimalism.) To be sure, James is less focused on compression in a broader sense than on audio compressors in particular. (Compressors are devices that balance dynamic range by reducing moments of high gain, aka volume.) James makes much of this, describing compressors as a kind of disciplinary regime. To compress sound is to "discipline" it to a normal range, she claims, just like when certain social groups are disciplined by capitalism. While such analogies might seem far fetched, her argument is in fact grounded in the actual science of sound compression, which, as Sterne and others have shown, was designed around specific kinds of voices, typically male. (Mara Mills's work on sound and disability is also instructive here.) So when James says that certain bodies are compressed out of the signal, she means it literally.

The logic of sonic inclusion/exclusion creates the basis for James's political commitments. If certain sonic phenomena are excluded — sounds, people who make those sounds, communities in which such sounds reside — what would it mean explicitly to "tune in" to the excluded registers? For this she turns to a series of concepts and practices in critical race theory, the notion of "phonographies" from Alexander Weheliye, Devonya Havis's notion of "sounding," Ashon Crawley's "choreosonics," what Katherine McKittrick calls a "demonic" calculus, as well as a variety of pop music performances from the likes of Rihanna and Beyoncé. (Kevin Quashie's work on quietude could conceivably fit here too.) As James puts it, "these all refer to phenomena that behave like acoustic resonance (e.g., they're rhythmic, oscillatory patterns)…but they are calibrated to the epistemic, ontological, aesthetic, and political practices black people have used to build alternative realities amid white supremacist patriarchal domination" (6). James frequently uses the expression "in the red" (borrowed from Tricia Rose) to refer to a kind of sound that is coded out of dominant sonic practices. Like the gain meter on a mixer, which might flash red once an input exceeds a certain strength, the "red" sounds are those sounds that somehow exceed (or are actively excluded from) the existing apparatus. "In the red" is thus both literal and metaphorical for James, literal since perceptual coding ensures that specific kinds of sound are excluded by design, but also metaphorically evocative of any kind of cultural practice illegible to the mainstream. (That Rihanna and Beyoncé might in fact be fully legible within the dominant apparatus is a possibility not much entertained by James.)

James's definition of acoustic resonance as "a specific type of vibratory movement" (63) puts her on a collision course with a whole series of developments in recent theory and philosophy. Specifically, James focuses on three authors loosely categorized as new materialists, Elizabeth Grosz, Jane Bennett, and Karen Barad. (In addition, James devotes a section to the Italian philosopher Adriana Cavarero, whose book *For More than One Voice: Toward a Philosophy of Vocal Expression* is a key text on voice and sound within philosophy, and within culture more generally. And in her final chapter James even addresses String Theory, the notion proposed by physicists and already accepted by Pythagoreans that the world might consist of small vibrating loops.) James's criticism hinges on the restorative mythology of real materiality, the way in which such authors posit vibrations as more authentic than images, how they suggest that resonance might bring us closer to presence, or that diffraction is a better way to think about plurality and multiplicity. "All three new materialist theorists [Grosz, Bennett, and Barad] define their basic unit of reality as a kind of acoustic resonance," James claims (91). "New materialism doesn't study representations or propositions but resonances" (92). I agree wholeheartedly with this assessment, and have previously written about Grosz here and here. I still nevertheless wonder why wave phenomena necessarily mean sound for James, since most vibrations are not sonic. James seems to be analyzing a larger paradigm, the analog real, through one of its specific iterations, sound waves. Although this might just be a quibble over terminology, since her larger point holds, that new materialists like Grosz, Bennett, and Barad lean heavily on a specific conception of materiality as vibratory, resonant, and diffractive. James stops short of calling Grosz et al. stooges, but the suggestion is that their brand of materialist ontology is marching lock step with the mandates of neoliberalism and biopolitics, that they are making philosophy safe for capitalism.

I'm reminded here of the classic distinction between arithmetic and geometry, the former the progenitor of digital, discrete and finite math, the latter the site of all things analog. James wants to say that capitalist math is bad, and I wouldn't disagree in general. But capitalist math today is largely arithmetical/computational/digital, while James focuses mostly on analog issues like resonance, consonance/dissonance, frequency ratios, etc. How to link one to the other? James is, of course, already aware of this problem, and frequently acknowledges it in her text. Her resolution of the problem is clever, if also a bit unsatisfying: quantitative capitalism links to qualitative sound via *analogy*. Thus, as with Grosz et al., the analog remains a natural infrastructure for James as well.

The crux of the problem remains with *logos*. Is *logos* a digital or analog technology? For James *logos* remains the analog technology par excellence. Recall how ratio/*logos* was used in the Pythagorean tradition: everything can be defined as a ratio between two magnitudes — every "rational" thing, that is. I don't dispute this, yet I ultimately view ratio/*logos* as a digital technology, as a kind of "pro forma" digitality or minimal digitality. I won't rehash what I've said before, but the two key elements that make ratio/*logos* digital are (1) a decision or cut, and (2) the encounter of the two (facilitated by the cut).

Image result for Fourier transform

Discussions of digital audio tend to focus on sample rates. But I've come to realize that the Fourier transform (FT) is just as

important if not more so, since the FT is where complex analog waves are decomposed into "digital" subwaves based on harmonic steps. In other words if the question is "where does digitality come from?" one important answer is "from the Fourier transform." Why? Because the FT moves the signal from the time domain to the frequency/harmonic domain, and in doing so *foregrounds specific harmonic frequencies*. Once a wave is defined as the sum of specific harmonics, it has effectively been discretized. What was once wholly analog may now be defined in terms of a sum of digital elements; what was once a continuous wave is now a series of discrete coefficients. A corollary to this is that frequency/harmonics as such are digital technologies, or at least proto-digital.

I would also push back against the notion that compression can or should be defined exclusively in terms of perceptual coding. Both James and Sterne are stubbornly anthropocentric on this point; compression is about psychophysics, case closed. Yet compression is a much more general phenomenon than simply disciplining/excluding certain frequencies and amplitudes based on perceptual coding. And compression is not exclusively a repressive apparatus. There can, for instance, be a form of compression that is culturally and politically useful — I'm thinking of Édouard Glissant's writings on opacity, for instance, but there are many other examples. To this end, Jason LaRiviere and I have broached the question of compression not in sound or image but in philosophy, specifically the twin techniques of abstract compression and generic compression (the former rather hegemonic and retrograde, the latter more progressive and interesting).

taken from here

← PREVIOUS   NEXT →

META

CONTACT
FORCE–INC/MILLE PLATEAUX

IMPRESSUM
DATENSCHUTZERKLÄRUNG

TAXONOMY

CATEGORIES
TAGS
AUTHORS
ALL INPUT

SOCIAL

FACEBOOK
INSTAGRAM
TWITTER